ABSTRACT

A nanogap array method and device are provided which can trap, detect, and identify a substance with high sensitivity even if the substance to be detected is molecules contained in liquid. This device includes a cantilever array (3) including cantilevers (4) each having a probe (5), and a substrate (1) disposed below the cantilever array (3) and having modified surfaced (2) arranged so as to correspond to the probe (5) of each cantilever (4). Nanometer-sized gaps are defined between the modified surfaces (2) of the substrate (1) and tips of the probes (5) of the cantilevers (4) to trap, detect, and identify at least one unknown substance (6) set on the modified surfaces (2).